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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,811	04/13/2007	Spartak Gevorgian	0110-096	6634
42015	7590	09/02/2008		
POTOMAC PATENT GROUP PLLC P. O. BOX 270 FREDERICKSBURG, VA 22404			EXAMINER TRAN, CHUC	
			ART UNIT 2821	PAPER NUMBER
			NOTIFICATION DATE 09/02/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tammy@ppglaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/597,811	GEVORGIAN ET AL.	
	Examiner	Art Unit	
	CHUC D. TRAN	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32,34-36,38 and 40-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32,34-36,38,40-55 and 59-62 is/are allowed.
- 6) ☒ Claim(s) 56-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/16/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over West (USP. 6,806,846) in view of West et al (USP. 6,285,337).

Regarding claims 56-58, West (846) discloses a tunable microwave/millimeter-wave arrangement in Fig. 2, comprising: a tunable impedance surface (Abstract), wherein the tunable impedance surface comprises at least one of an Electromagnetic Band gap (EBG) structure (200) (Col. 6, Line 38), the EBG structures (200) (Fig. 2), comprising: at least one tunable ferroelectric layer (201) (Col. 6, Line 38), at least one first top metal layer (203), and at least one second metal layer (202) (Fig. 2), wherein the first and second metal layers are disposed on opposite sides of the at least one ferroelectric layer (Fig. 2); at least the first metal layer is patterned (Col. 7, Line 48); a dielectric permittivity of the at least one ferroelectric layer is dependent on a DC biasing voltage applied directly or indirectly to at least one of the first and second metal layers disposed on different sides of the at least one ferroelectric layer (Col. 6, Line 38-44). However, West (846) is silent on the limitation of the first and second metal layers comprise a respective number of radiators, and the radiators of the first and the second metal layers are differently arranged. West et al (337) disclose in Fig. 5 and 7, comprising a respective number of radiators (303 and 204), and the radiators of the first and the second metal layers are differently arranged

Art Unit: 2821

(Fig. 5). Thus, it would have been obvious to one of ordinary skill in the art to modify West (846) by providing the first and the second metal radiators layers are differently arranged as taught by West et al (337). Providing the first and the second metal radiators layers are differently arranged for electronically steering an antenna in order to reduce the complexity of phase shift control circuits of West (846) would have been obvious to one of ordinary skill.

Allowable Subject Matter

3. Claims 32, 34-36, 38, 40-55 and 59-62 are allowed.
4. Claims 57-58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is an examiner's statement of reasons for allowance:

Prior art fails to disclose or suggest in combination with the remaining claimed limitation: the first metal layer comprises an array of radiators that form a two-dimensional (2D) array antenna and that are galvanically connected by via connections through the ferroelectric layer with a further second, bottom, metal layer, and a DC biasing voltage is applied to the first metal layer indirectly over the further second metal layer in claim 32, claims 34-36, 38, 40-55 and 59-62 are allowed since they are dependent on claim 32.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUC D. TRAN whose telephone number is (571)272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chuc D Tran/
Examiner, Art Unit 2821

/Douglas W Owens/
Supervisory Patent Examiner, Art Unit 2821
August 26, 2008